SSBN 726 Class Auxiliary Equipment Inspection Guide

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Section	EQUIPMENT / INSPECTION	TIMING	REMARKS / SPEC
1	**Arrival & Inbrief**		
1.1	INBRIEF	IP	
1.1.1	Inspector & ship review inspection guide	IP	
1.1.2	Ship questions	IP	
2	**Ship Preparations & Actions**		
2.1	Provide tech manuals for trim & drain pump, CO2 scrubber	IP	Place in area used by INSURV board during inspection.
2.2	Empty hydraulic accumulator tell-tale drain bottles	IP	S/F Identify Leak Rate criteria
2.3	Remove oil from hydraulic pump mechanical seal areas	IP	S/F Identify Leak Rate criteria
2.4	Provide the most current "as found" conditions for URO/16	IP	URO/MRC-16
2.5	Provide logs for week prior to inspection	IP	Below Decks, Aux Fwd, HPAC, HPAD, LPAC, LPAD, HPP
3	**Inspector Preparation & Record Review**		
3.1	Review CSMP, CO Letter, CASREPS/Departures	IP	
3.2	Review flex hose records (SSN)	IP	
3.3	Review dew point data for HPAD and air banks.	AN	5511/S-5R, 5542/S-6R PMT tasked in services message
3.4	Open & Inspect list	IT	Provided by recorder prior to return to port.
4	**Oil Samples**		
4.1	Scrubber compressors	AN	5151/R-14
4.2	HPAC's	AN	5515/S-3R
4.3	LP blower	AN	5541/A-5R
4.4	Sanitary pump	AN	5282/W-2
4.5	Return headers	AN	A-054/S-4R
4.6	R-134a compressors	AN	A-006/Q-6: Draw sample from initially idle unit. Shift units for second sample after inspector has completed operating unit inspection.
4.7	External hydraulics	AN	5562/Q-12R
5	**OBSERVED SHIP EVOLUTIONS**		
5.1	Observe depth control operations.	SB	SSM. PD evolution
5.2	Observe hovering operations.	SB	SSM. Translate up and down 50ft.
5.3	Angles & dangles	SB	Both scrubbers, O2 generator operating
5.4	Test operation of MBT vent valves in manual and local power	TD	
5.5	Test AMR flood control	TD	URO-25 for closures
5.6	Emergency surface	SB	URO/MRC-22. Achieve min. 15deg. rise, AX inspector in control
5.7	Surfacing evolution	IT	Inspect LP Blower for leaks, noise, oil level, temp. Oil pressure 18 ± 2 psig.
6	**DIESEL**		
6.1	Diesel operation, trend	IT	3121/S-3R, operation and shutdowns
6.2	Snorkel safety	IT	SSM, NSTM
6.3	Test diesel coolant	IT	3121/M-5R
6.4	Review diesel pressure switch data	IT	
6.5	Review diesel records	IT	NSTM chapters, logs
6.6	Diesel operational checks:	PD	SSM OP and OI: Check submerged op. parameters
			3422/R-5, R-6D: DLO dilution & viscosity check
			3422/Q-2R: DFO clear and bright

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			Transfer fuel through filter separator
6.7	Install diesel spare governor	SB	Diesel tech manual
6.8	Run diesel with spare governor	IT	SSM OI
7	**SNORKEL SYSTEM**		
7.1	Verify lubrication of induction and exhaust valves	AN	3423/Q-3
7.2	Time outboard induction and exhaust valves	OT	3423/S-1R
8	**BLOW / BALLAST SYSTEMS**		
8.1	LP blower operation	OT or IT	Run until oil temp stabilizes. Check for noise, oil level, oil leaks, air leaks
9	**OXYGEN GENERATOR**		
9.1	Drop test	OT	Tech Manual (If not accomplished prior to INSURV arrival)
9.2	Gas analyzer check	OT	5154/R-5M (If not accomplished prior to INSURV arrival)
9.3	Pre-startup checks	OT	Tech Manual (If not accomplished prior to INSURV arrival)
9.4	Normal operation	SB	Tech Manual and SSM
9.5	Verify in-place gauge calibration	AN	5154/A-3
9.6	Inspect drier molecular sieve cartridge	SB	5154/R-6
9.7	Verify testing of cell lifting rig	AN	5154/48M-3
9.8	Successful operation at large angles	SB	Verify unit does not shut down during angles and dangles. Run at 1050 Amps.
10	**OXYGEN SYSTEM**		
10.1	Test remote operator closure capability	IP	A-086/A-1R or A-2R as applicable: provide latest data sheets to inspector.
10.2	Verify correct set-up of remote O2 hull valve operators	AN	SSM, Technical Manual
11	**CO-H2 BURNERS**		
11.1	Conduct short-term monitoring of burner operating parameters	AN	5151/Q-3: SF perform PM and provide data sheets to inspector.
11.2	Review burner operating logs	IP	
12	**CO2 SCRUBBERS**		
12.1	Review scrubber logs	IP	
12.2	Inspect absorber air inlet screen for cleanliness	AN	
12.3	CO2 scrubber capacity	IP	5151/S-5R: SF perform PM and provide data sheets to inspector.
12.4	CO2 scrubber performance	SB	Plot performance on curves in Tech Manual
12.5	CO2 scrubber MEA	IP	Lean & Rich Samples: check for color and corrosion products.
12.6	Test monoethanolamine in storage tanks	AN	5151/18M-1R
13	**O2 CANDLE FURNACE**		
13.1	Clean and inspect furnace and candle storage	AN	5154/R-2
14	**HPAC**		
14.1	Shutdown passive checks	AN	S6220-E6-TTM-010
14.2	Operational test & passive checks	AN	5515/Q-4: SF perform PM and provide data sheets to inspector.
14.3	Stage temp and press	IT	S6220-E6-TTM-010
14.4	Blowdown system	IT	S6220-E6-TTM-010

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14.5	Oil leaks	IT	
14.6	Review logs from underway	IP	S6220-E6-TTM-010
15	**HPAD**		
15.1	Inspect after filter and check valves	AN	5511/S-4R
15.2	Observe normal operation	IT	SSM, Tech Manual
15.3	Review operating logs	IP	SSM, Tech Manual
16	**HP AIR**		
16.1	Time AHP-54, 55 Marotta valves	AN	SSM, Valve tech manual
16.2	Inspect HP air system and reducer filter differential pressure indicators	AN	SSM
16.3	Inspect air bank Marotta valve(s)	AN	SSM
17	**LPAC**		
17.1	Review pressure switch data	AN	5519/A-2: PMT tasked on services message
17.2	Check bypass valve operation	AN	5519/M-9
17.3	Inspect air inlet filter	AN	5519/A-11
17.4	Verify normal operation of LPAC	AN	SSM
17.5	Review LPAC logs	IP	
18	**LPAD**		
18.1	Test low purge air flow switch	AN	5519/S-2: Need to catch it while the heater is on.
18.2	Inspect desiccant and after filter	AN	5519/A-3R
18.3	Inspect air cooled condenser	AN	5519/S-7
18.4	Check overall condition	AN	SSM, Tech Manual
18.5	Review LPAD logs	IP	
19	**LP AIR**		
19.1	Inspect service air system and reducer filter differential pressure indicators	AN	5519/A-17R, A-19R
19.2	Service air automatic stop valves	AN	5519/Q-3
20	**SALVAGE AIR SYSTEM**		
20.1	Verify lubrication of internal air salvage valve swivel gear joints	AN	5941/A-10
20.2	Check salvage air hull valves	AN	SSM
21	**VENTILATION**		
21.1	Ventilation filters	IT or IP	5132/2M-1
21.2	Ventilation ducting	IT or IP	5132/Q-1, Q-2
21.3	Inspect infrequently operated dampers	IT or IP	5132/A-5
22	**R-134 / REFRIGERATION**		
22.1	#1 Unit Operating: Observe operating parameters	AN	A-006/S-3R: Lube oil level and foaming, pressures, temps, frost buildup on lines, flex hose labels, mechanical seal
22.2	#2 Unit Operating: Observe operating parameters	AN	A-006/S-3R: Lube oil level and foaming, pressures, temps, frost buildup on lines, flex hose labels, mechanical seal
22.3	Inspect freeze box	AN	A-006/Q-1: Condition of door gaskets, ice buildup on cooling coils, TXV sensing line position and insulation
22.4	Inspect chill box	AN	A-006/Q-1: Condition of door gaskets, ice buildup on cooling coils, TXV sensing line position and insulation
22.6	Inspect TXV areas	AN	A-006/24M-4R: Excessive icing indicates lagging problem
22.7	Inspect moisture indicators	AN	A-006/W-1R
22.8	Refrigerant leak check	AN	A-006/S-5R
22.9	Review logs	AN	NAVMED P-5010: Freeze box: -5 to 0 deg; Chill box: 33 to 35 deg

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23	**STEERING & DIVING GEAR** **NOTE: Phones manned in Shaft Alley and Control for Stern and Rudder testing**		
23.1	Surfaced ahead steering gear in normal and emergency	OT	OOD: 0-HL-HR-0, verify course, 0-HR-HL-0, repeat in EMER
23.2	Surfaced astern steering gear in normal and emergency	OT	OOD: 0-HL-HR-0, verify course, 0-HR-HL-0, repeat in EMER
23.3	Test planes prior to submerging and submerge ship	OT	SSM (Inspector in Control)
23.4	TD-100 ft. Inspect control surfaces for binding, normal power only.	DD	Only Normal Power, All surfaces, phone talkers required. OOD: hard to opposite hard to zero.
23.5	Time control surfaces just below the rig for high speed line of SOE	SB	URO/MRC-16. SSM: Normal and emergency power, all surfaces. Phone talkers required. Usually scheduled after deep dive.
23.51	Rudder (35 +/-0.5)	SB	OOD: 0-HL-HR-0, verify course, 0-HR-HL-0, repeat in EMER
23.52	Stern planes (25 +/-0.5)	SB	OOD: 0-HR-HD-0, verify depth, 0-HD-HR-0; repeat in EMER
23.53	Fairwater planes (20 +/-0.5)	SB	OOD: 0-HR-HD-0, verify depth, 0-HD-HR-0; repeat in EMER
24	**SHIP SERVICE HYDRAULICS**		
24.1	Inspect pump discharge differential pressure indicators	SB	A-054/W-5, Q-15
24.2	Inspect return line differential pressure indicators	SB	A-054/Q-14
24.3	Inspect pressure potentiometer rollers	SB	A-054/S-1
24.4	Inspect pilot control valve differential pressure indicators	SB	A-054/A-16
24.5	Mech seal leakoff	SB	Tech Manual: 5 drops/hr
24.6	Accumulator leak-off	SB	Tech Manual: 250 ml/day
24.7	Inspect overall plant condition and leak check	SB	
25	**STEERING AND DIVING HYDRAULIC PLANT**		
25.1	Inspect pump discharge differential pressure indicators	SB	5612/W-3, M-1
25.2	Inspect return line differential pressure indicators	SB	
25.3	Inspect plant for leaks and cleanliness	AN	Tech manual
26	**EXTERNAL HYDRAULICS**		
26.1	External hydraulic pump testing	SB	5562/Q-5 (when ext hyd not req)
26.2	Accumulator leak-off	SB	Tech manual: 250 ml/day
26.3	Inspect external pump discharge filter differential pressure indicator	AN	5562/Q-10
26.4	Inspect plant for leaks and cleanliness	AN	Tech manual
27	**TRIM, DRAIN & SAN**		
27.1	Trim pump strainers	OT/SB	A-118/S-11R: proper fasteners, basket condition, A&I completed on handles
27.2	Drain pump strainers	OT/SB	A-118/M-4: proper fasteners, basket condition, A&I completed on handles
27.3	Trim and drain pump seal water	SB	SSM
27.4	Trim pump capacity check	TD	Pump at max continuous RPM
27.5	Drain pump capacity check	TD	Pump at max continuous RPM

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27.6	Observe pumping to and from all trim tanks with the trim pump	AN	SSM
27.7	Inspect priming pump tank levels	AN	SSM
27.8	Inspect condition of priming pumps, tanks, and associated valves and piping	AN	SSM, Tech manual
27.9	Sanitary pump capacity check	TD	SSM: pump one san tank
27.10	Conduct in-place inspection of san pump drive belt	AN	5282/A-1
28	**HOVERING AND DEPTH CONTROL**		
28.1	Inspect hovering and depth control valves for leaks	AN	
29	**DEPTH GAGE**		
29.1	Verify isolation of shallow depth gauge on SCP below 200 feet	AN	SSM
29.2	Inspect depth gauge piping for leaks	AN	
30	**POTABLE WATER AND PLUMBING**		
30.1	Inspect flushing water inlet Y-strainer	AN	5282/24M-1R
30.2	Inspect deodorizer filters	AN	
30.3	Inspect for plumbing valve lubrication	AN	5282/S-1
30.4	Inspect potable water pumps	AN	SSM, Technical manual
31	**TDU**		
31.2	Test TDU interlocks and operation	OT	5934/Q-4: Perform PMS with inspector
31.3	Inspect TDU torque wrench	OT	5120-00-247-2540: Correct wrench and calibration
31.4	Test compactor interlocks	AN	5934/Q-9: Perform PMS with inspector
31.5	Inspect TDU shafts	AN	5934/S-1
31.7	TDU flood control timing	AN	URO/MRC-25
32	**MISC & SUPPORT EQUIPMENT**		
32.1	Inspect pneumatic grease guns	AN	T6350-AA-HBK-010: Regulator not flow meter style w/ oil separator IAW FLASH 12/01
32.3	Review oil analysis records	AN	
32.4	Spot check flex hoses	AN	5000/A-1, A-2, A-3
32.6	Blow a sea chest	SB	SSM OI
33	**ZONE INSPECTIONS**		
33.1	Capstan space zone inspection	AN	MBT actuator oil levels and grease
33.3	AMR zone inspections	AN	S/A 3794 Rev. 2: Modified AEB system accomplished and labeled?
33.4	Fan room zone inspection	AN	Fan room door, stowage, O2 station/gauges
33.5	TDU room zone inspection	AN	
33.6	Shaft alley zone inspection	AN	MBT actuator oil levels and grease, O2 station bank stop valves and gauges, dive stop nuts

Open and Inspect Items			
Standard Items			
Diesel Engine/Systems Open and Inspect		IP	
	Inspection covers		Upper and lower crankcase, air box, exhaust header, vertical drive
	Scavenging blower		3121/18M-4R: open discharge and measure clearances
	DLO, DFO		3422/A-3R, 18M-1R: filters
	DFW		Pump
	Special tools, OSI		Spot check
Oxygen Generator		IP	
	Inspection covers		5154/S-7R
	Replace DI and cooling water filters		
CO/H2 Burner		IP	
	Catalyst level		5151/R-5
	LiCO level		5151/S-2R
	Inlet air filter		5151/R-4
EAB Filters		IP	5519/A-1: remove & inspect one fwd, one aft
CO2 Scrubber		IP	
	Resin bags		
	Strainers		
	Boiler float valve		
	Inlet air filter		
HPAC Cuno Filters		IP	5515/R-6
Conditional Items			
LPAD		IP	As directed by inspector.
Hydraulic Power Plant		IP	As directed by AX Inspector
	Filters	IP	Any filter with OOS D/P
	HYD Pump Mech Seal	IP	As directed by AX Inspector
	Test Hydraulic Plant Emergency Modes	IP	A-054/R-11, if directed based on underway parameters. Report deficiencies to inspector.
LP Blower		IP	As directed by inspector.
	Lube Oil Strainer	IP	
	Lube Oil Sump	IP	
	Suction Pipe (internal clearances)	IP	
EMBT Blow		IP	Any Parker check valve that failed to re-seat. Prepare package to open blow valves that feed failed Parker check.

Timing Codes

AN	Anytime
DD	Deep Dive
IP	In Port
IT	Inbound Transit
OT	Outbound Transit
SB	Submerged
TD	Test Depth

All specifications are in accordance with relevant tech manuals, Maintenance Record Cards and Ship Systems Manuals.